

ProCROSS Crossbreds More Feed Efficient

That translates to higher income over feed cost

By Jim Dickrell (Dairy Herd Management, March 8)

ProCROSS crossbred dairy cows have a 34¢ to 60¢/day advantage in income over feed costs over purebred Holsteins in this University of Minnesota study.

Most dairy farmers now recognize that crossbred cows are healthier and breed back faster thanks to hybrid vigor. What they might not realize is that hybrid vigor might also be helping crossbreds be more efficient at converting feed into pounds of protein and butterfat.

Understandably, there's some skepticism this occurs because crossbred dairy cows typically carry more body condition and look less "dairy" than purebred cattle.

Looks can be deceiving. In a four-year trial at the University of Minnesota, crossbreds produced the same pounds of butterfat and protein as purebred Holsteins but ate two pounds less feed per day on a dry matter basis. The result: An income over feed cost (IOFC) advantage of 34¢/cow/day for crossbred first-calf heifers and a 60¢/cow/day advantage for second- and third-lactation crossbred cows.

The crossbreds are a three-way rotation of Montbeliarde, Viking Red and Holstein (ProCROSS). The Holsteins are bred using Holstein bulls ranked by the Net Merit index.

Because of the expense of collecting daily feed intakes and weighing cows and scoring for body condition weekly, the study was conducted for just the first 150 days of lactation. But there's no reason not to believe the feed efficiency advantage of crossbreeding extends throughout lactation. Second- and third-lactation crossbred cows may be even a bit more feed efficient than first-calf heifers.

"In pigs and beef cattle, there is hybrid vigor for feed efficiency," says Les Hansen, a University of Minnesota dairy geneticist. So one could assume a similar effect in dairy cattle, and this trial, albeit with a limited number of cattle, indicates there is. A bit more on that later.

There were just over 200 lactations of cows involved in the trial: 123 first-calf heifers (60 purebred Holsteins, 63 crossbreds) and 80 second- and third-lactation cows (37 Holsteins, 43 crossbreds). To make up for small numbers, data collection was intense. Feed intakes were recorded daily, and body weights and body condition scores were recorded weekly. Graduate student Brittany Shonka-Martin did all of the weighing and body condition scoring over the four-year study (with the exception of the week she got married) to ensure consistency.

She found the crossbred cattle carried about a quarter point more body condition than the purebreds. The crossbreds and Holsteins were not statistically different in body weight.

Her conclusion after all of that work: Both first-lactation and older crossbred cows had higher average fat plus protein and higher energy-corrected milk per unit of dry matter intake and higher protein production per unit of crude protein intake.

To put all of that into dollars, the IOFC for first-lactation Holsteins was \$825 for the first 150 days in milk compared to \$875 for the first-lactation crossbreds. For second- and third-lactation cows, the Holsteins had an IOFC of \$1,208 compared to \$1,296 for the crossbreds.

Shonka-Martin also looked at “residual feed intake” (RFI) which is a calculation that adjusts for milk energy output, body weight, and body weight change. In her study, she found first-calf Holsteins had an average RFI of 152 pounds of feed that could not be accounted for by milk energy output or body weight. “First-calf crossbreds had 144 pounds less feed that could be accounted for by milk energy output or body weight,” she says. The RFI differences were roughly the same for second- and third-lactation cows.

“So it’s about a pound of dry matter more than we were expecting the Holsteins to eat and about a pound less than expected for the ProCROSS cows,” says Hansen. Herein lies the potential hybrid vigor for feed efficiency. The crossbreds were inherently able to convert less feed into more milk solids, either through lower maintenance requirements or some other factor.

If you scale these differences up to a commercial herd milking 1,000 cows, the amount of dry matter difference would be a ton per day (or two tons on an as-fed basis). Some crossbred herds, taking advantage of this greater feed efficiency, are already feeding a bit cheaper ration with less starch.